

10F28

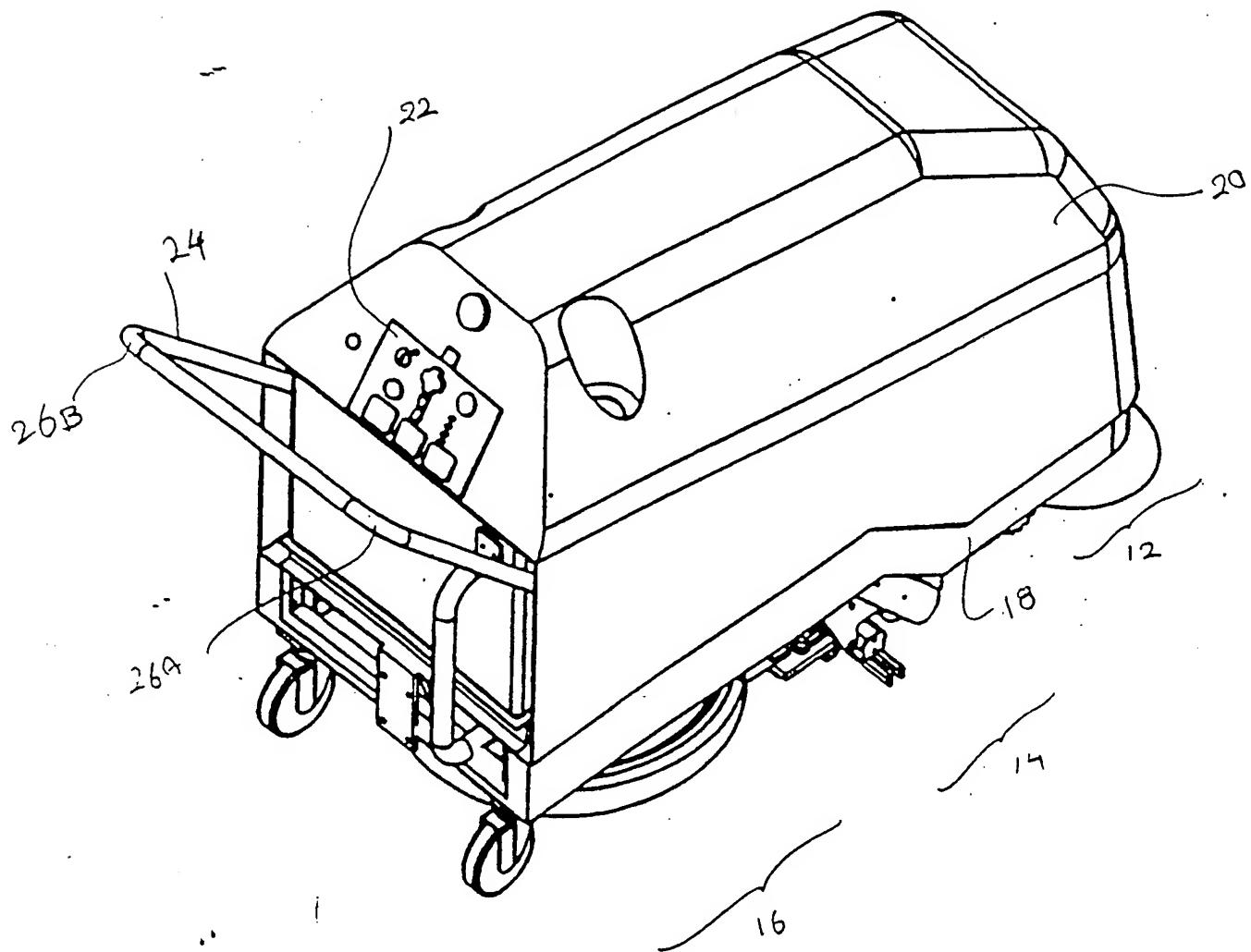


FIG.1

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S

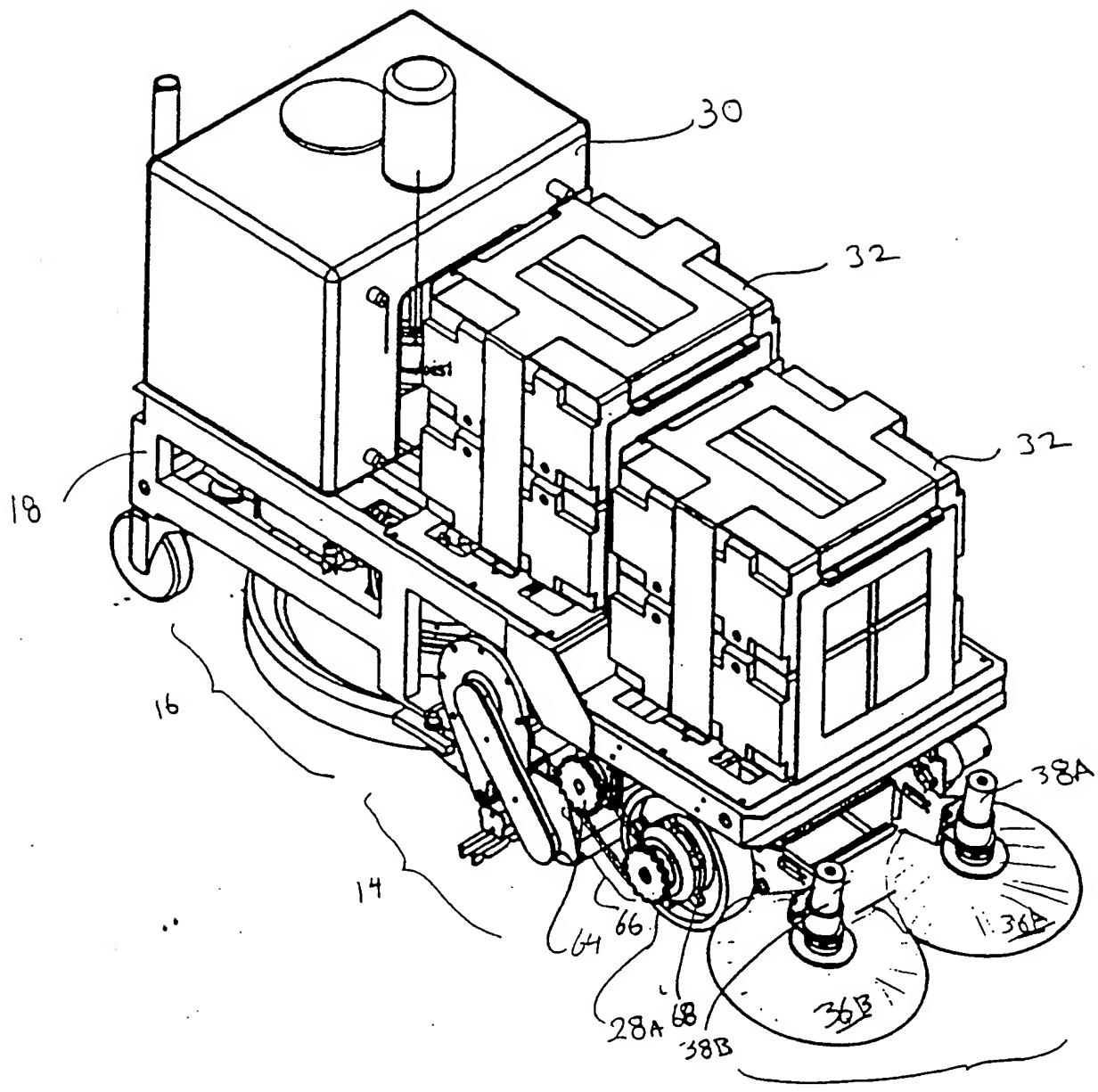


FIG.2

SOF 28

FIG. 3

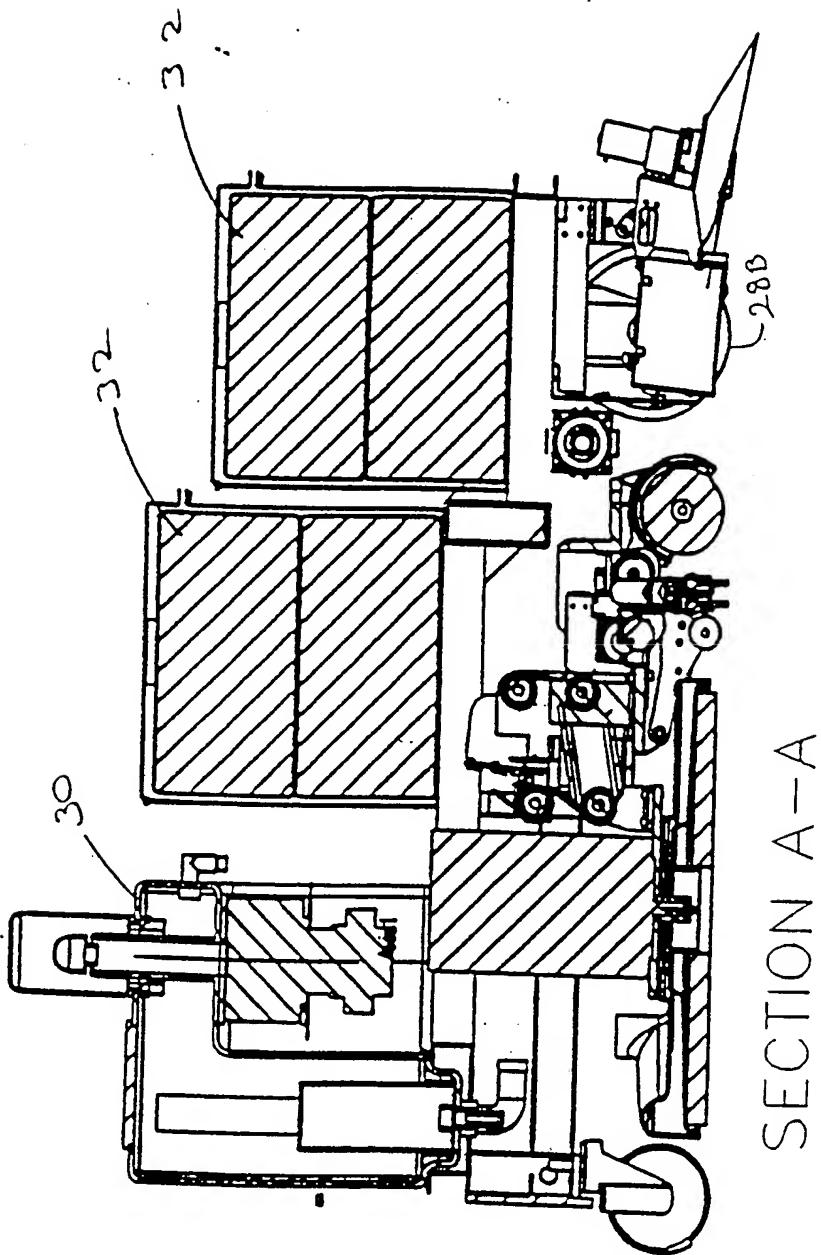
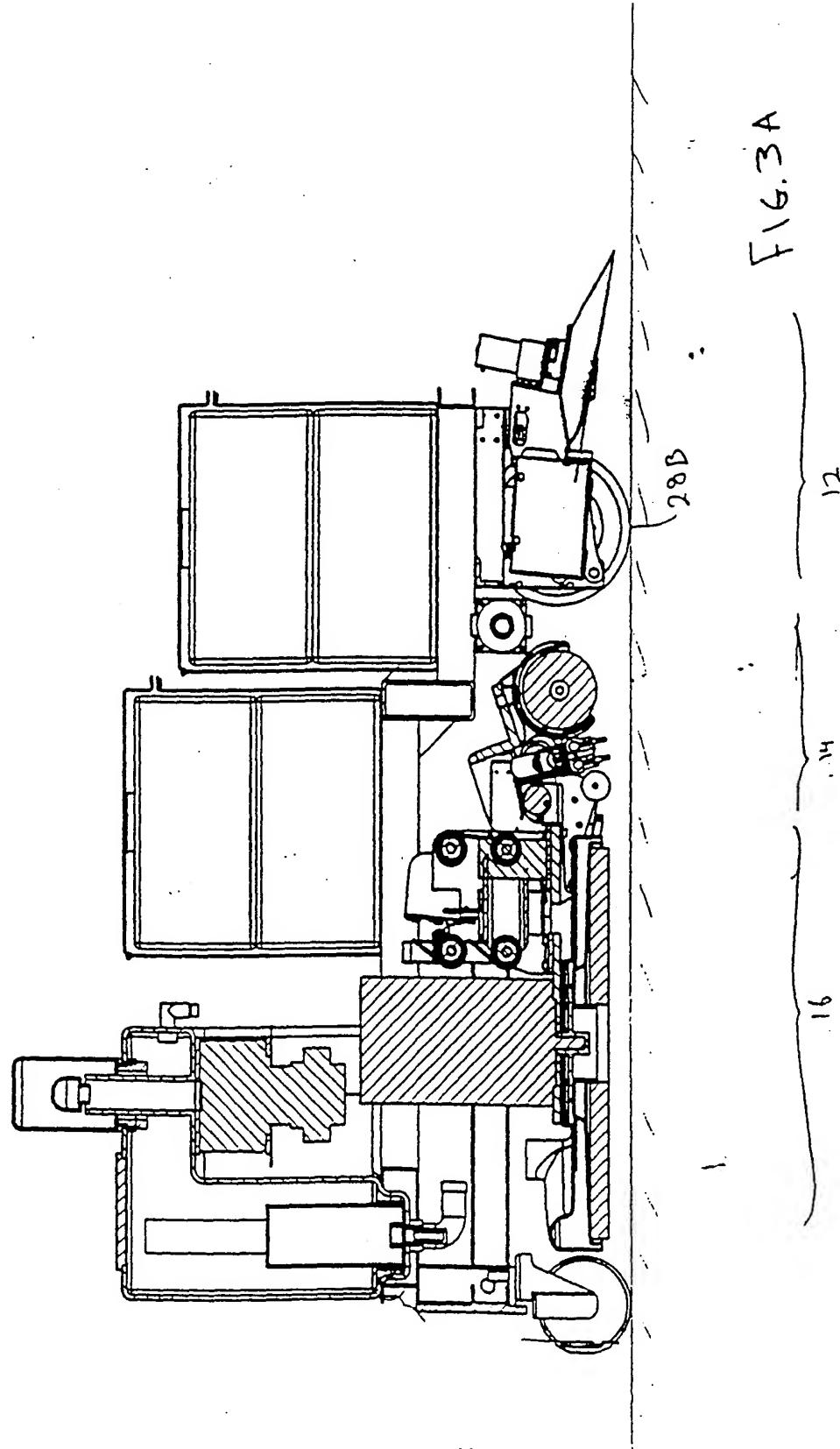


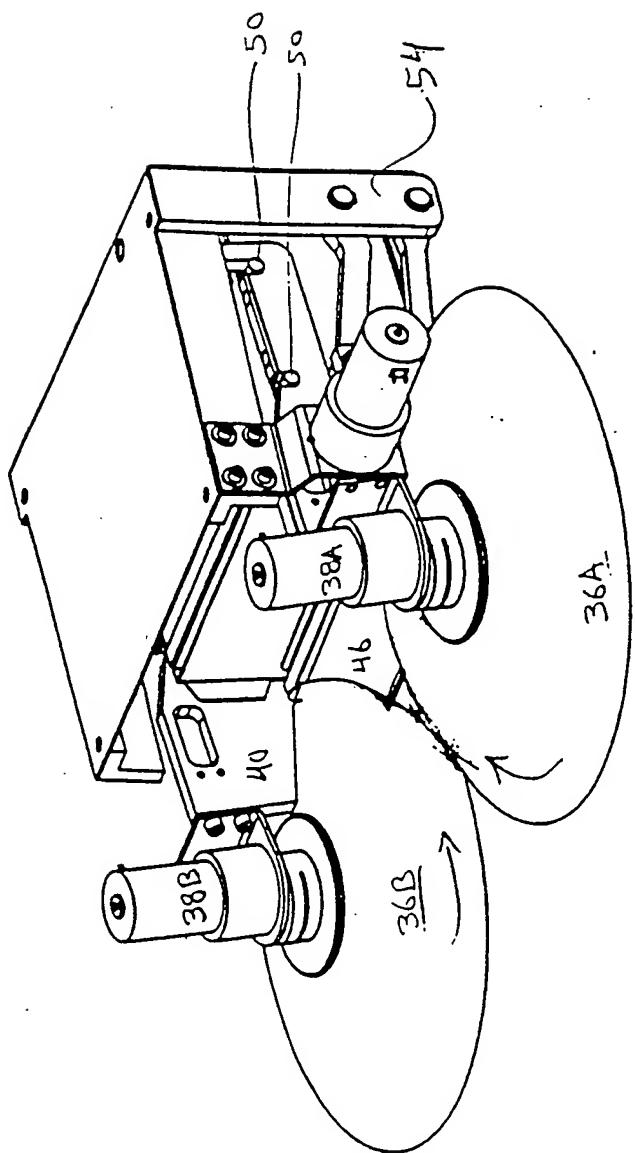
FIG. 3A



SDF 28

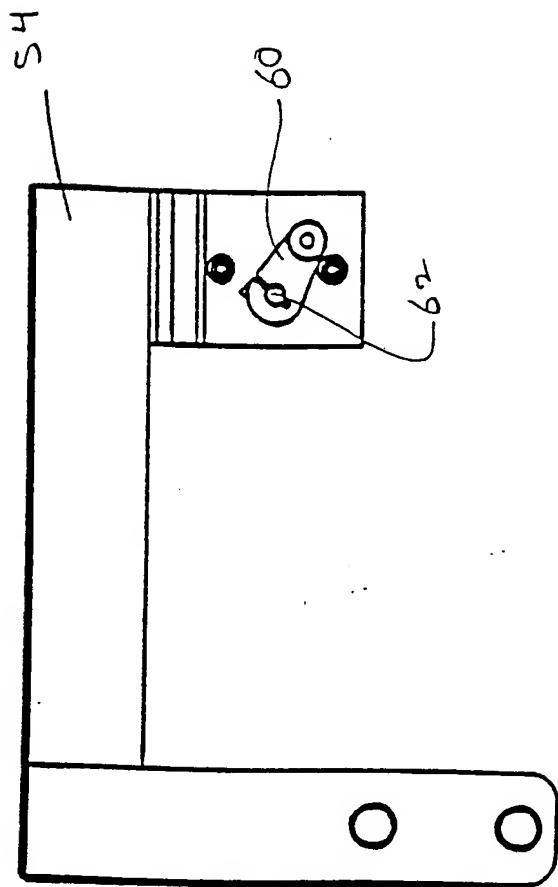
12
↙

FIG. 4



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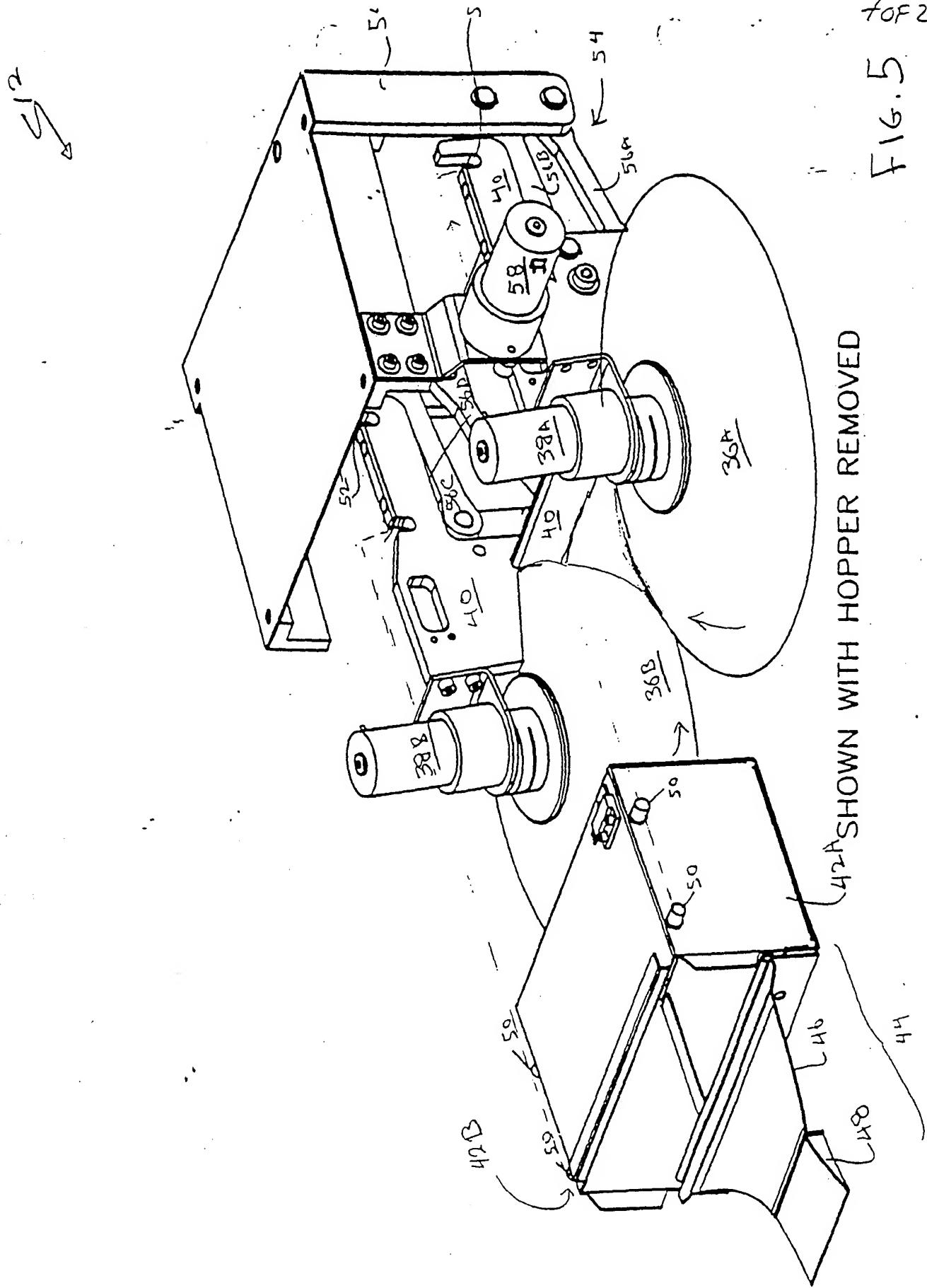
FIG. 4A



70F28

Fig. 5

42A SHOWN WITH HOPPER REMOVED



512

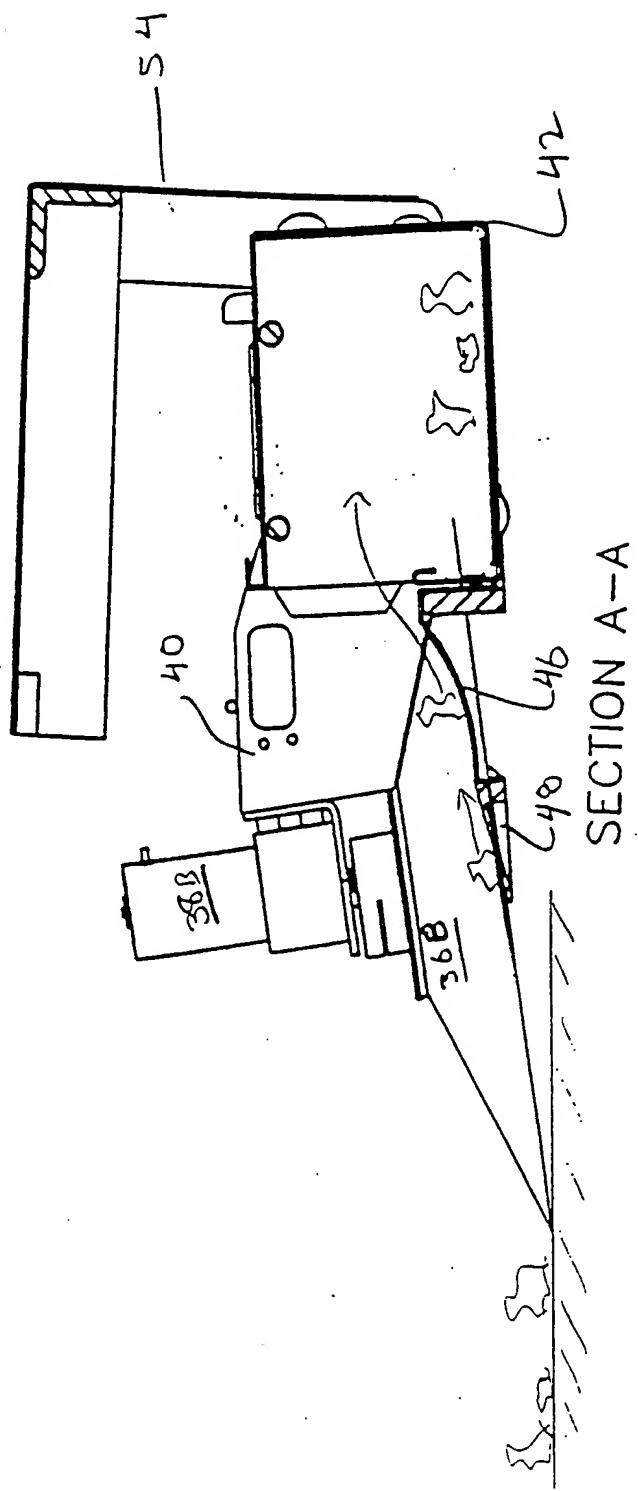


FIG. 6

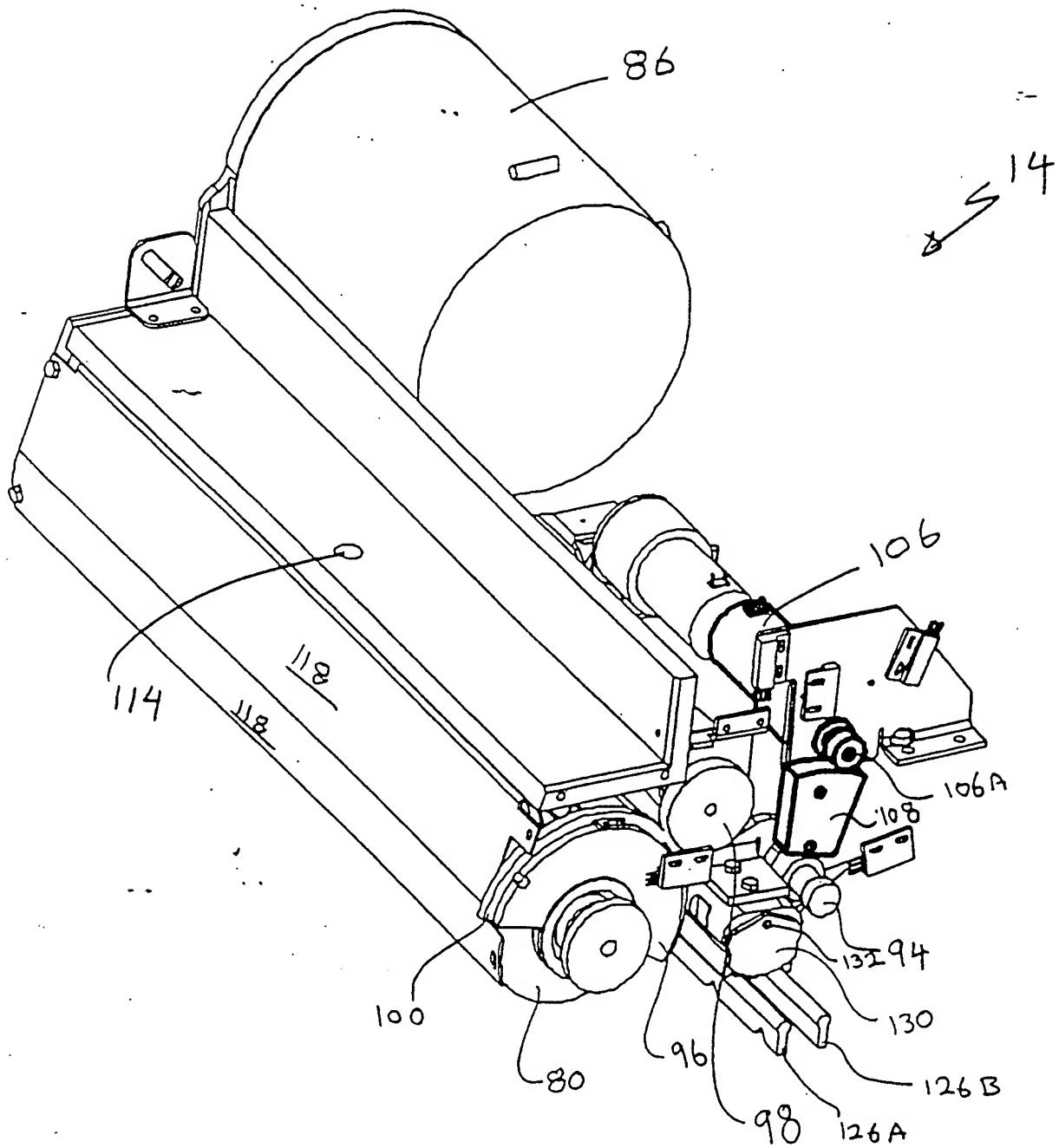
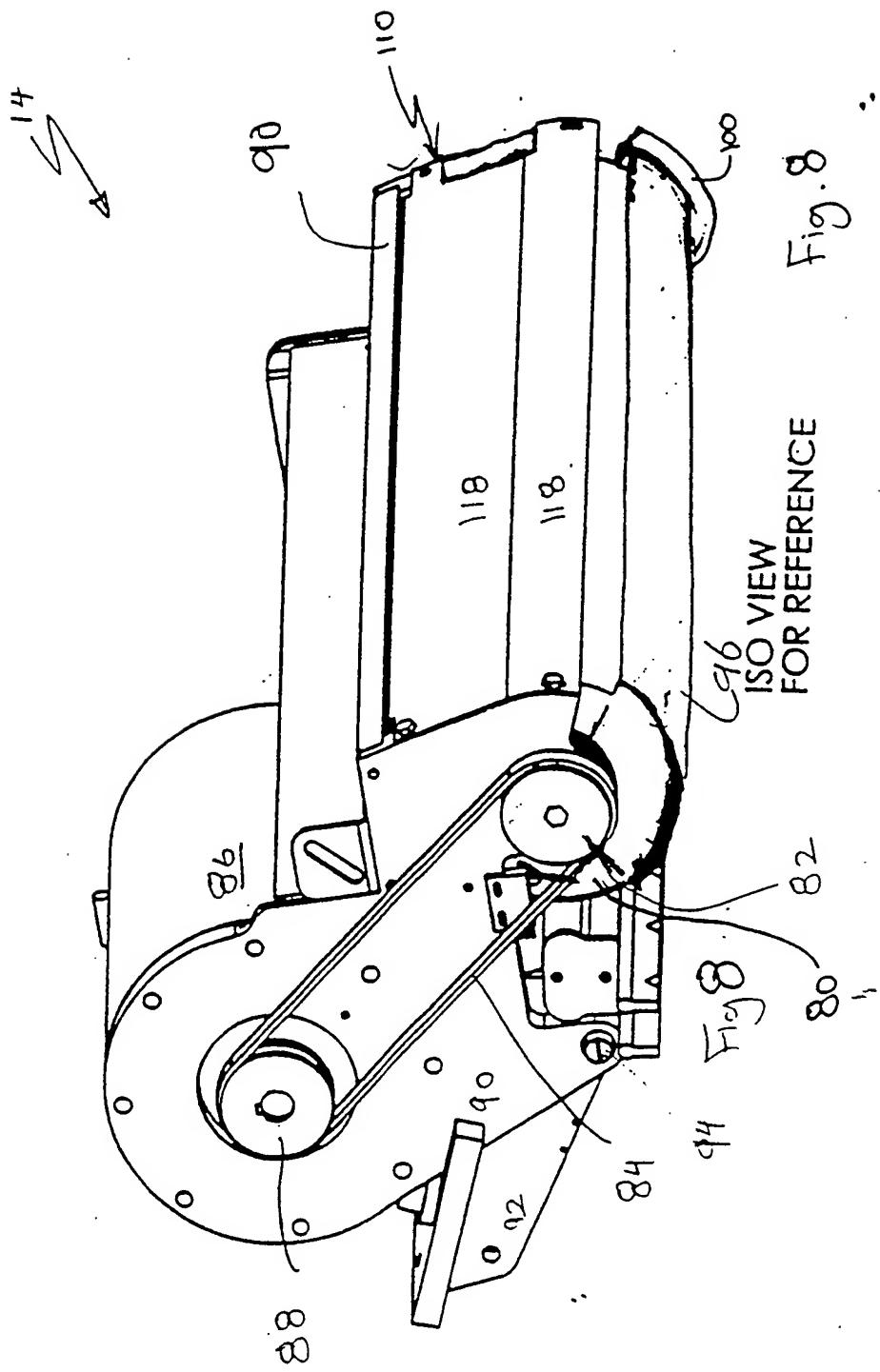
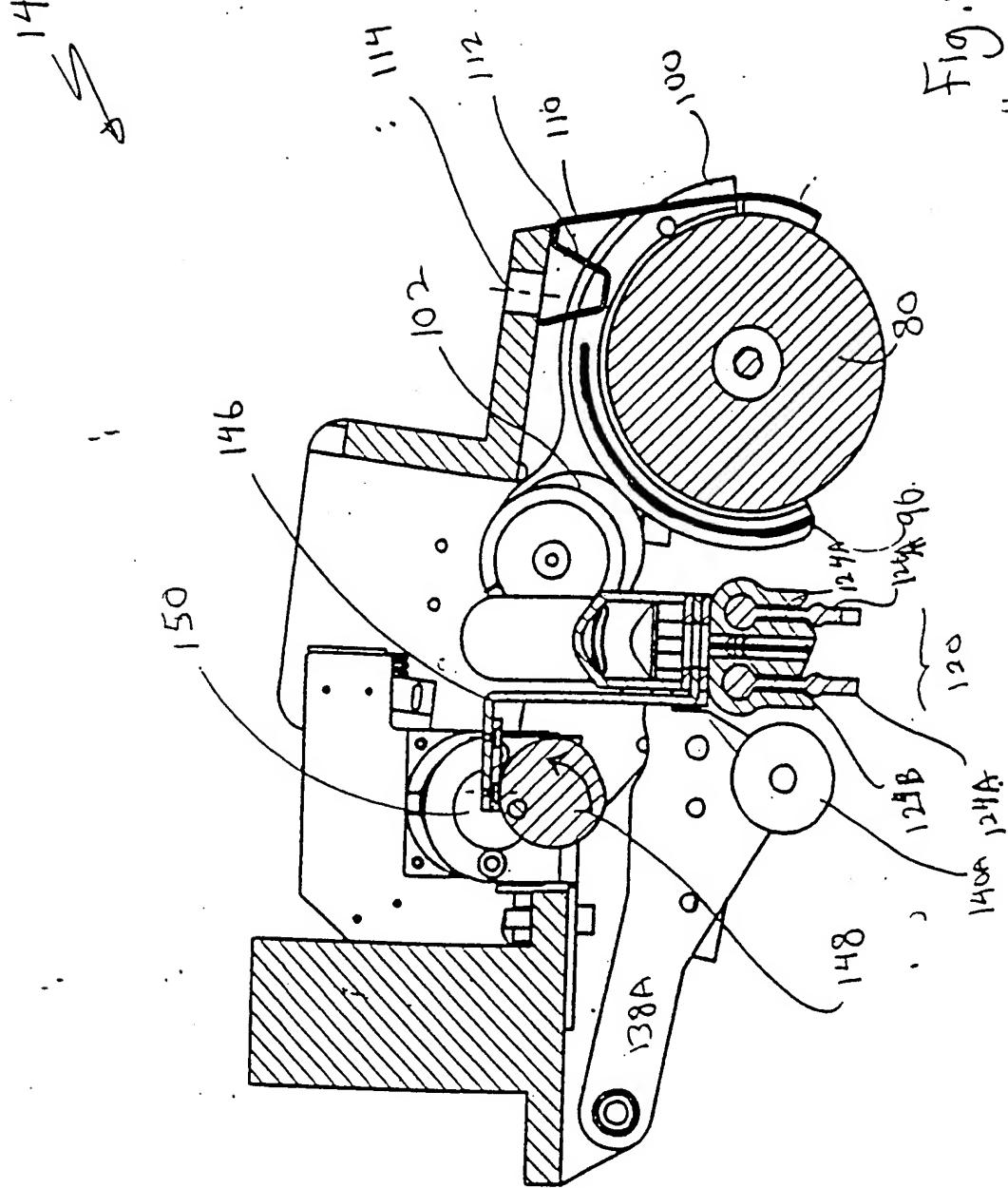


Fig. 7



11 of 28

Fig. 9



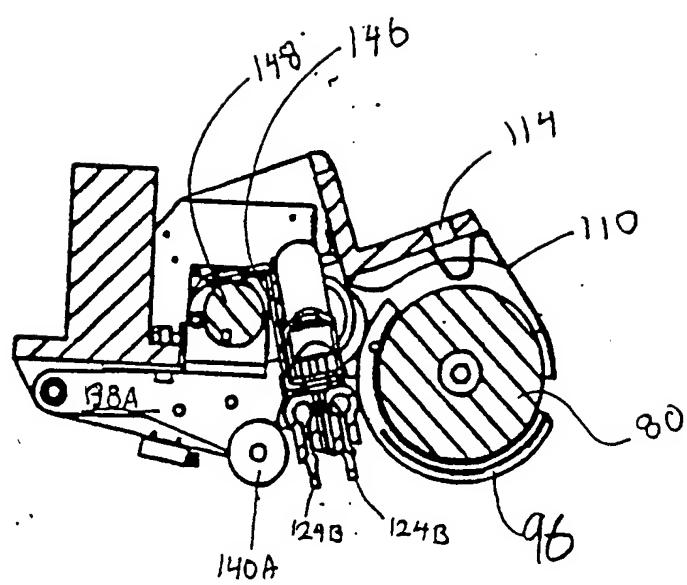
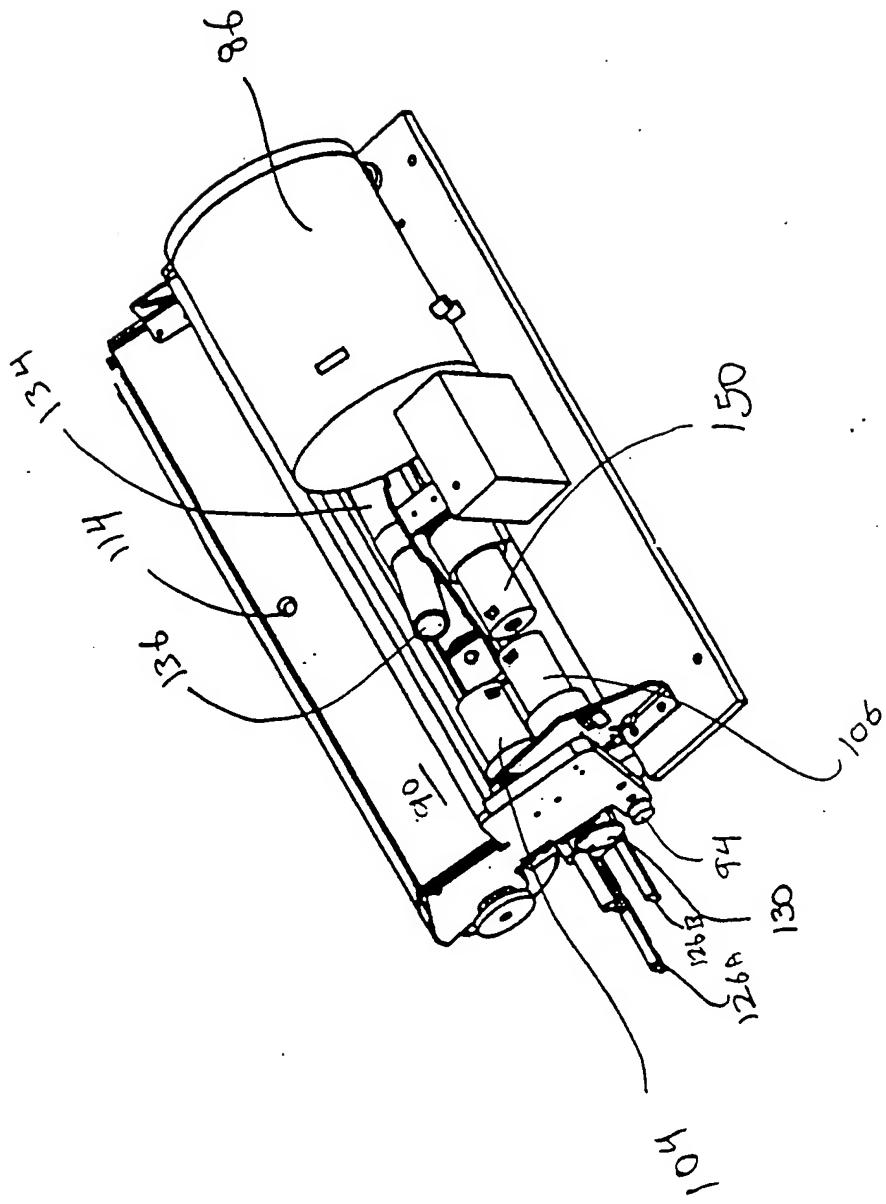
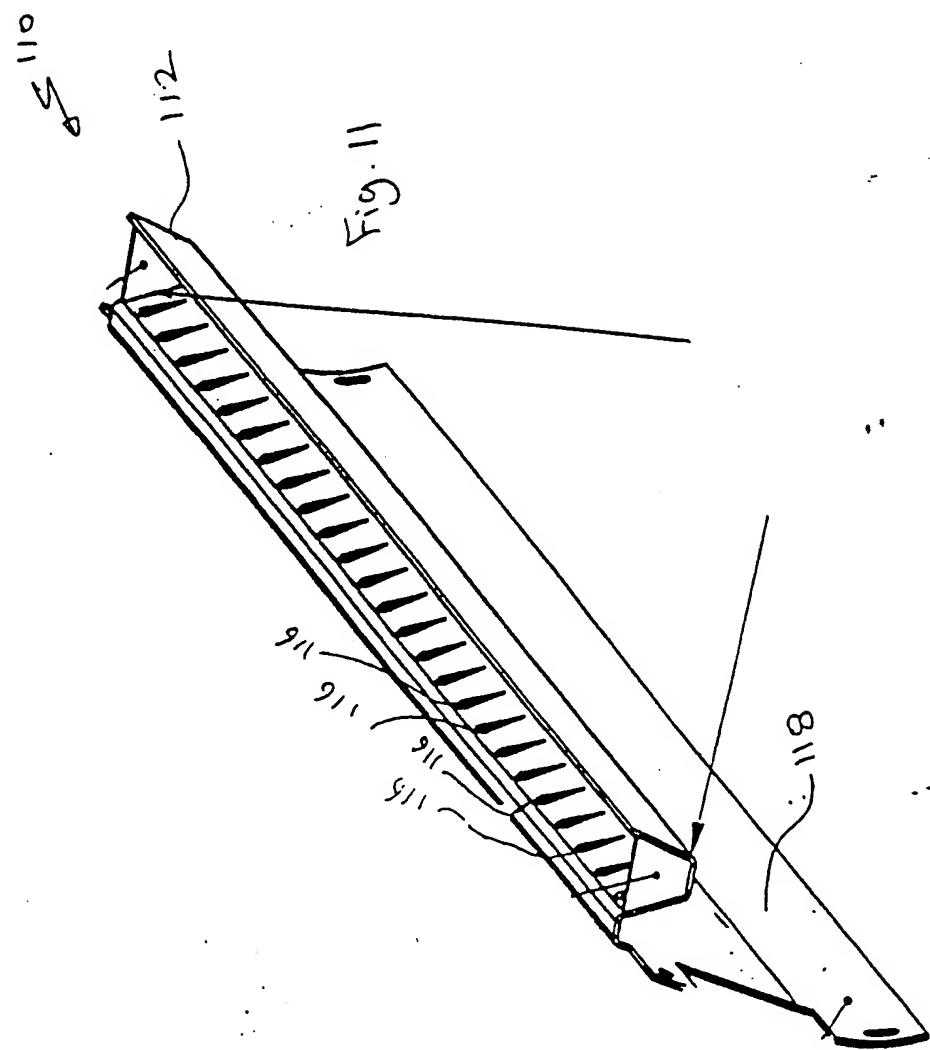


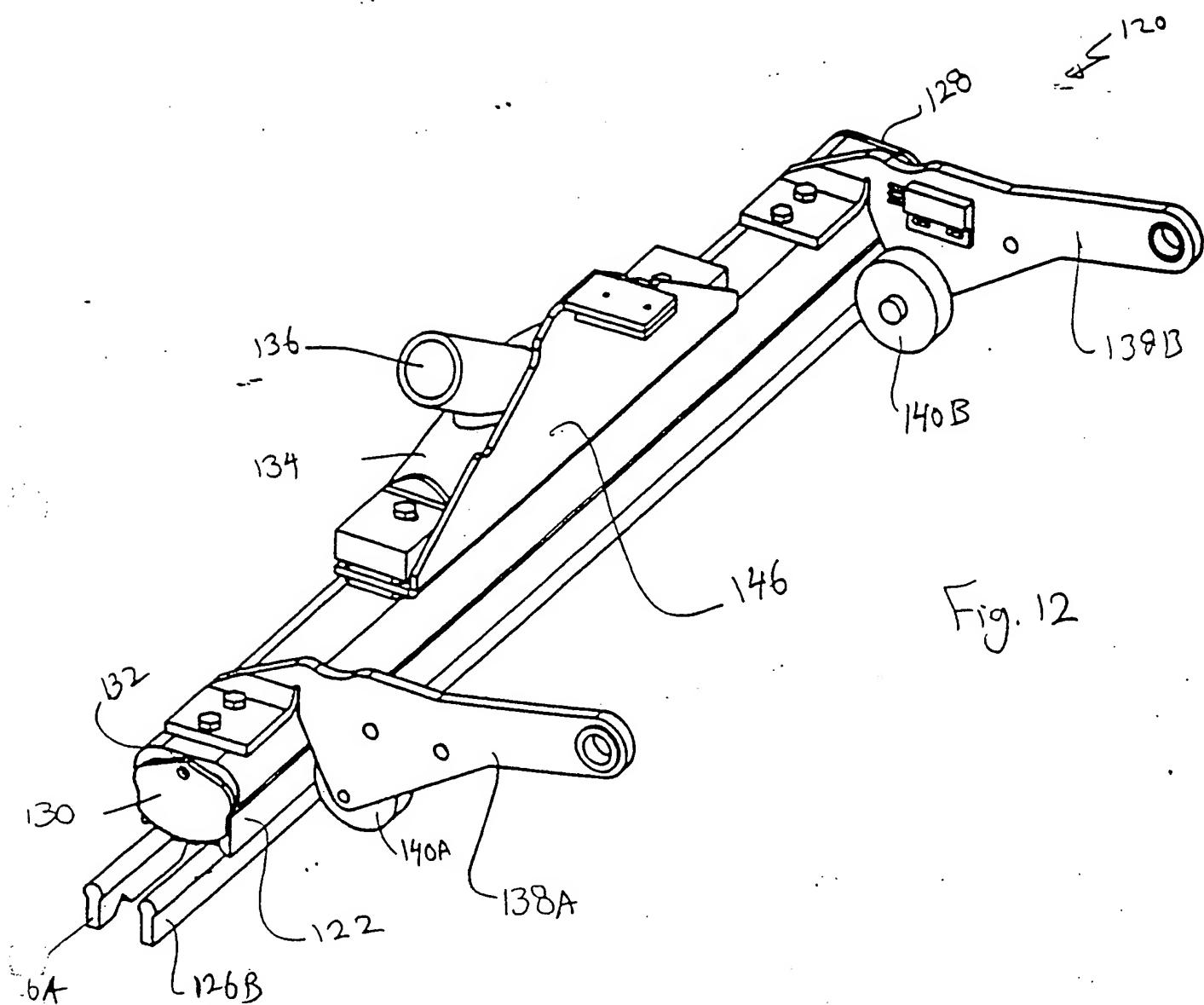
Fig 9A

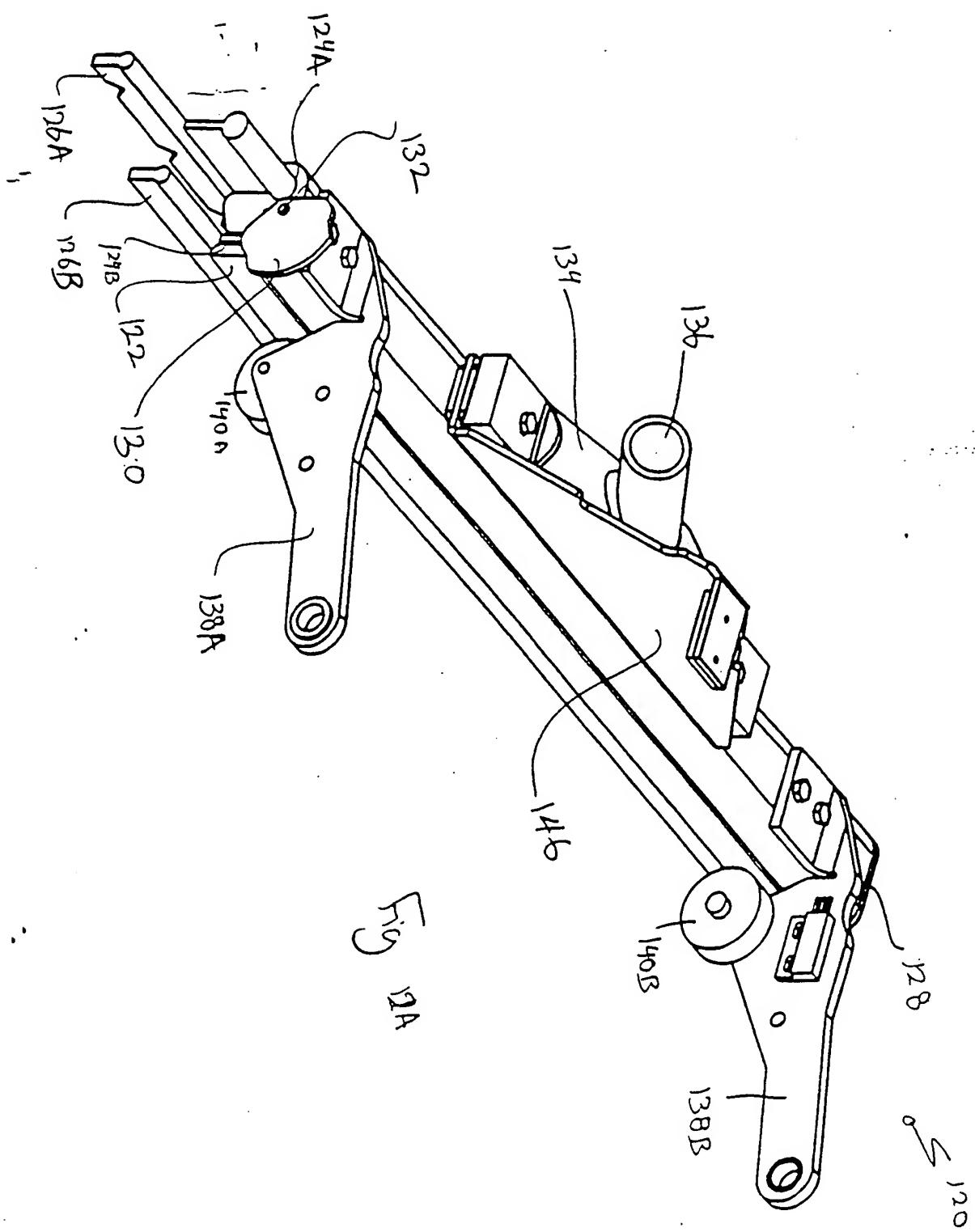
Fig. 10.



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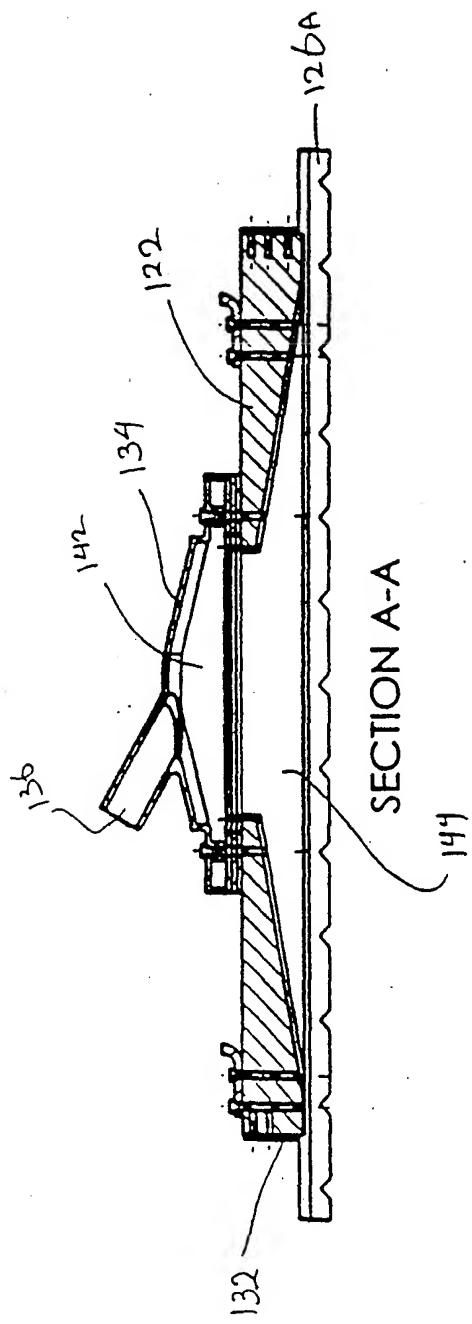


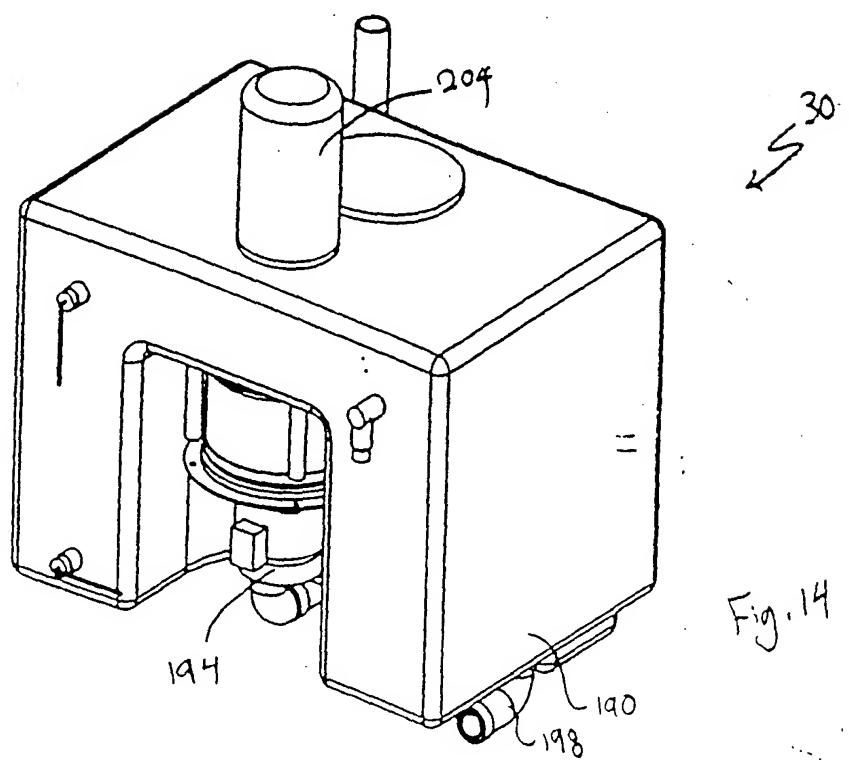
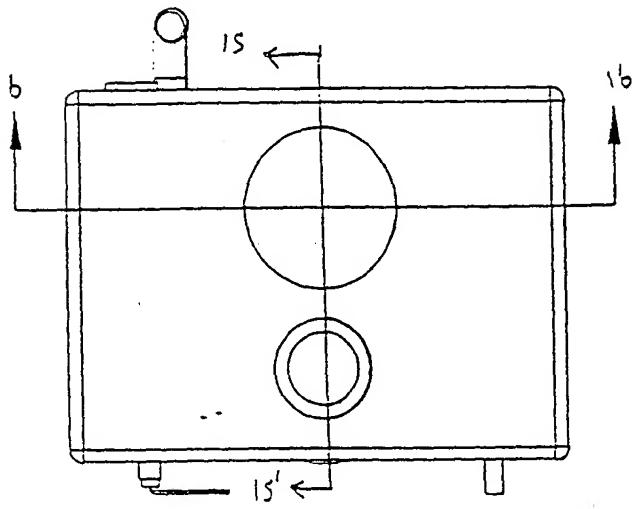
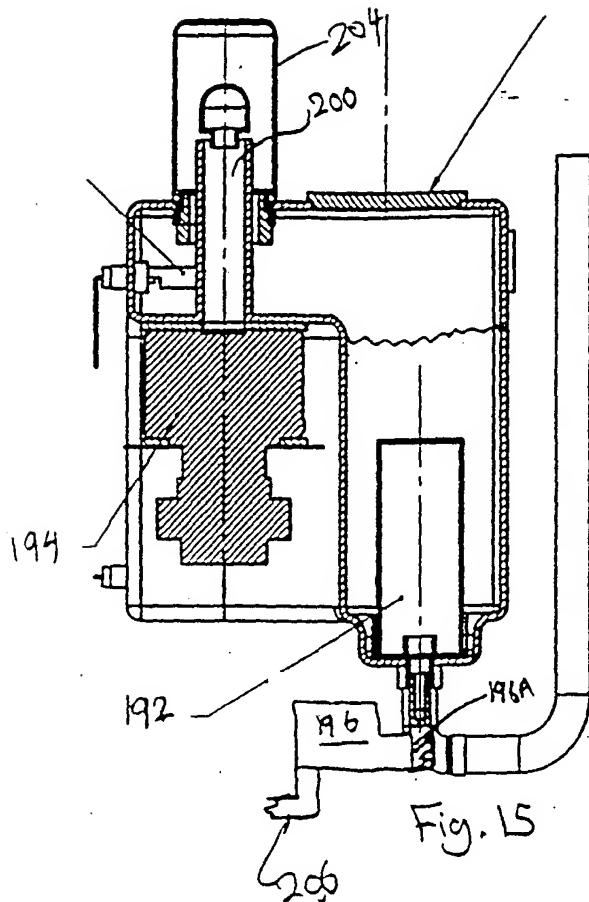
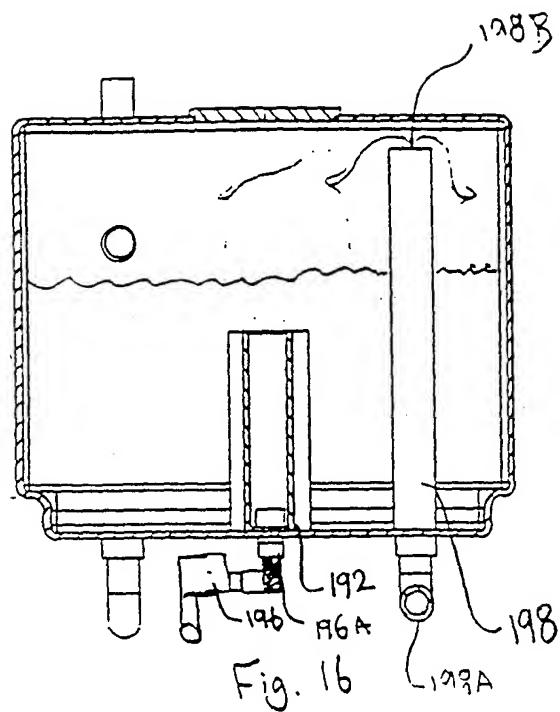




17 of 28

FIG. 13





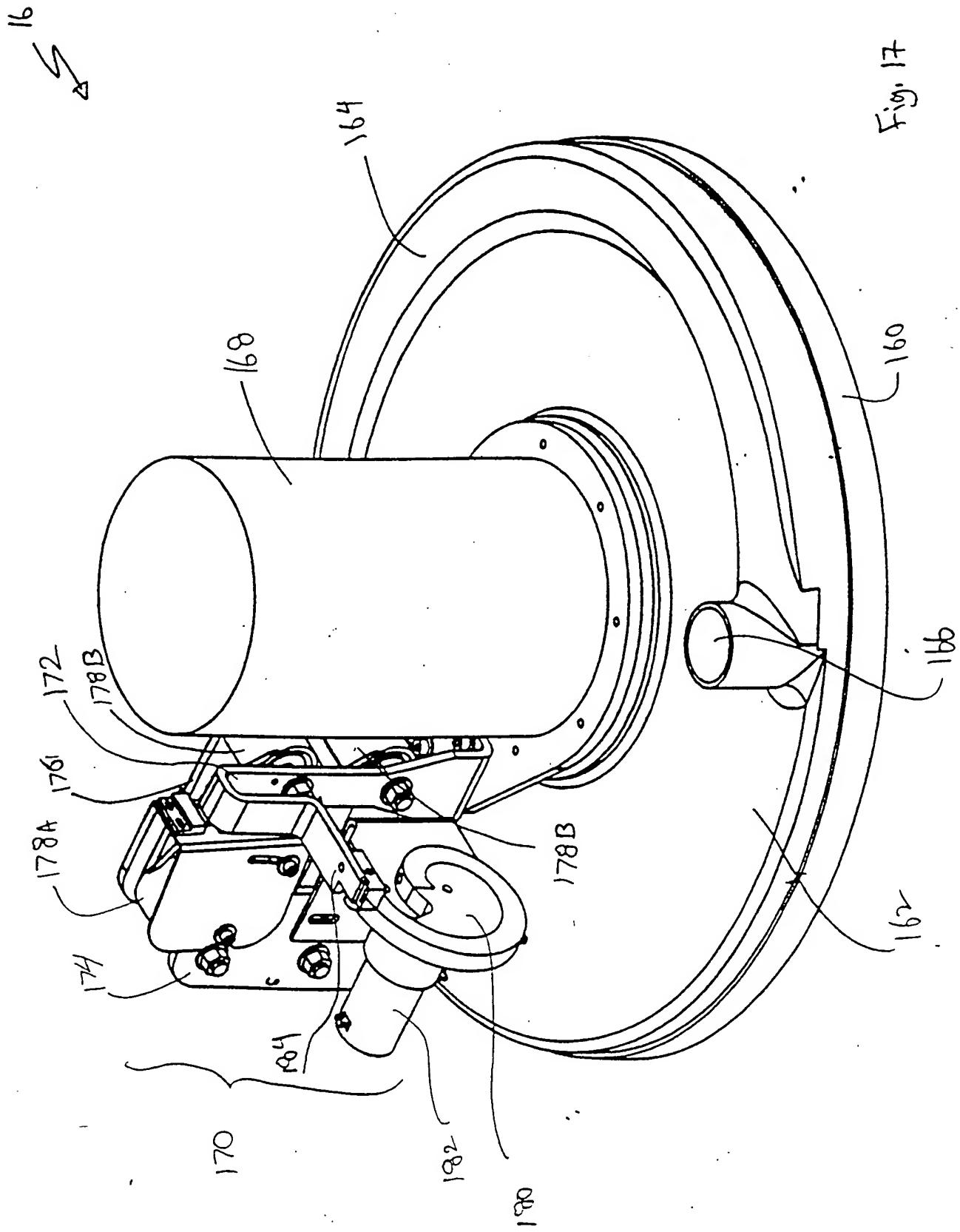


Fig. 17

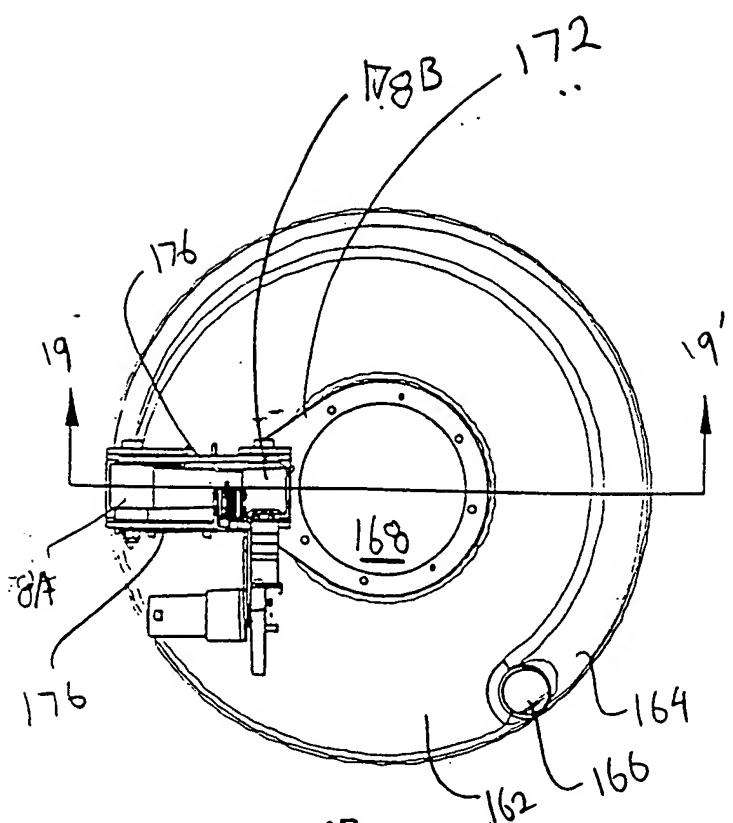


Fig. 18

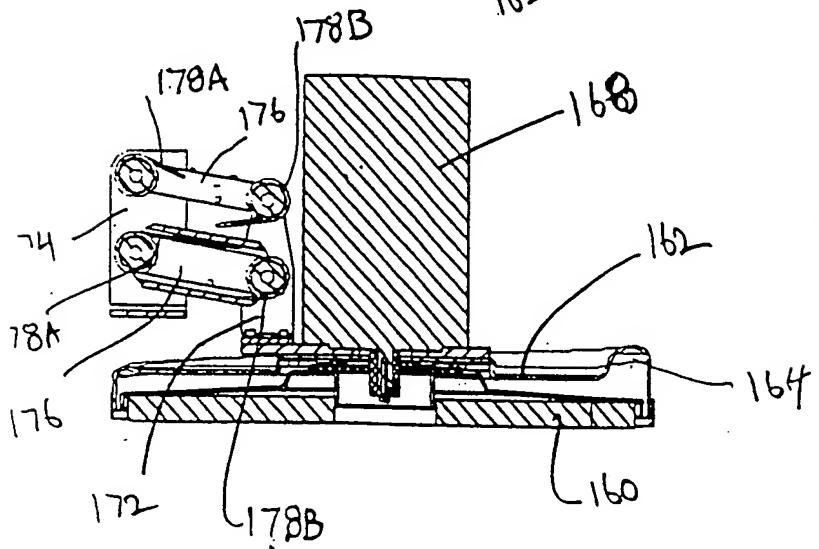
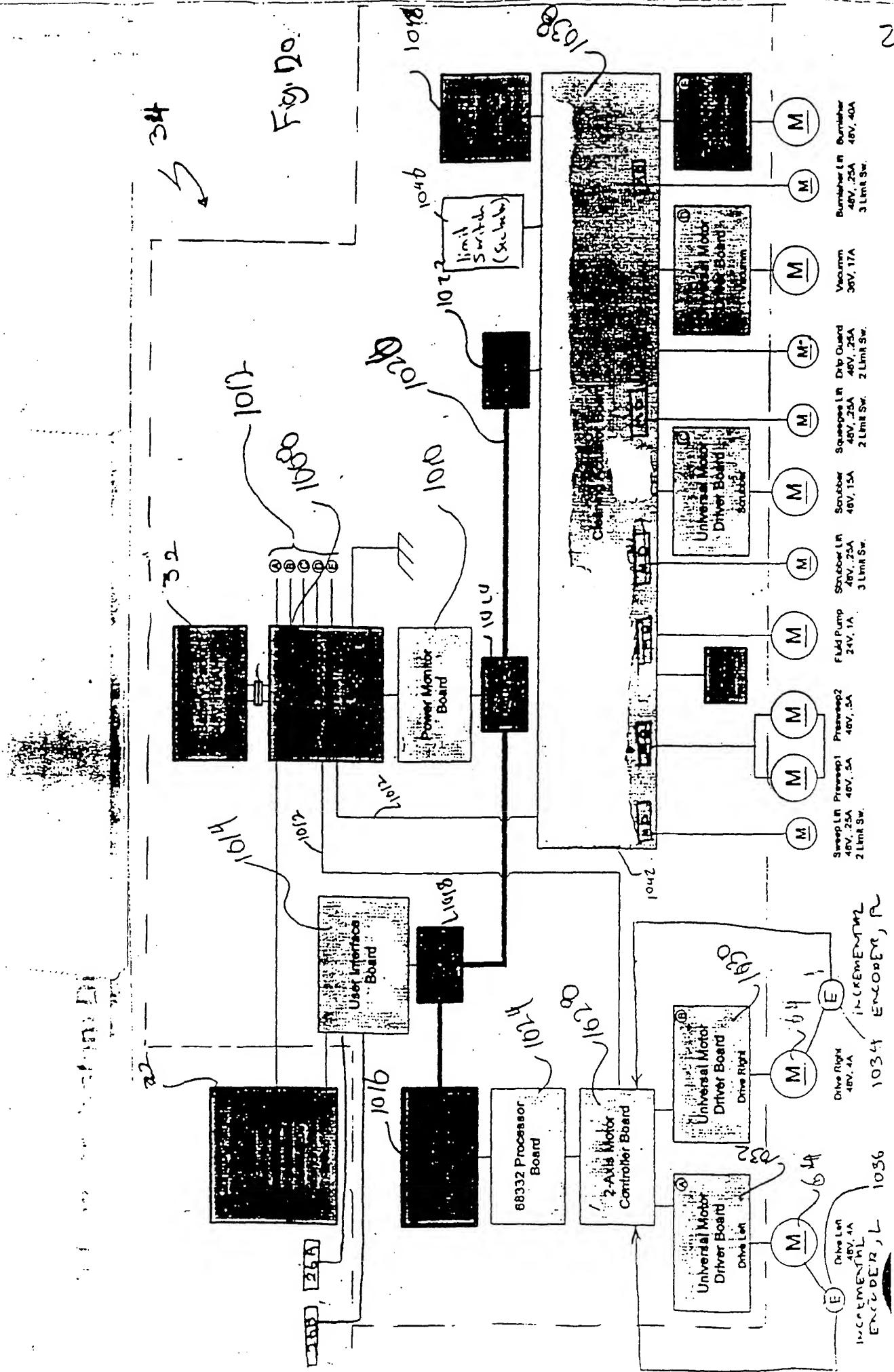


Fig. 19



21 OF 28

Fig. 21

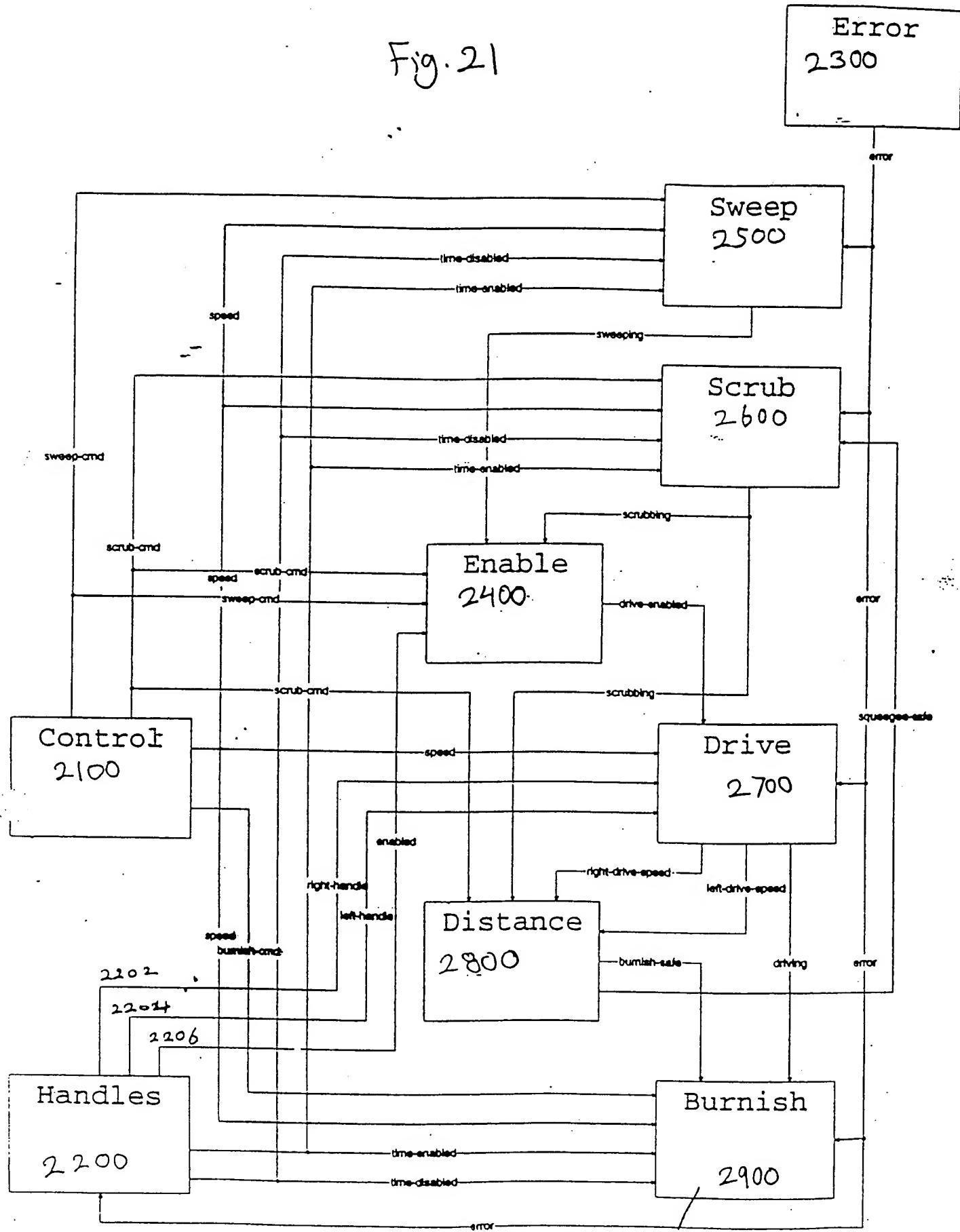


Fig. 24-

S 2200

HANDLES

variables: enable-time, disable-time

```

if(NOT error){
    right-handle is ui-right-handle
    left-handle is ui-left-handle
}

if(right-handle OR left-handle){
    disable-time is FALSE
    time-disabled is FALSE
    if(NOT enable-time)
        enable-time = current time
    time-enabled = current time - enable-time
}
else{
    enable-time is FALSE
    time-enabled is FALSE
    if(NOT disable-time)
        disable-time = current time
    time-disabled = current time - enable-time
}

enabled is (right-handle OR left-handle)
}
else{
    enabled is FALSE
    right-handle is FALSE
    left-handle is FALSE
    time-enabled is FALSE
    time-disabled is FALSE
}

```

] 2202

] 2204

] 2206

] 2208

] 2210

] 2212

ERROR

low level software filters the hopper full sensor

```

if(ui-hopper-missing OR ui-tank-overflow OR ui-tank-empty OR system-error)
    error is TRUE

```

S 2300

] 2302

Fig. 22

Fig. 29

2800

DISTANCE
variable: burnish-distance, squeegee-distance

```

if(scrub-cmd AND scrubbing){
    if(NOT burnish-distance)
        burnish-distance = 0
    else
        burnish-distance = burnish-distance +
            DistanceFunction(right-drive-speed, left-drive-speed, rate)
}
else
    burnish-distance = FALSE

if(scrubbing)
    squeegee-distance = FALSE
    squeegee-time = FALSE
else
    if(NOT squeegee-distance)
        squeegee-distance = 0
        squeegee-time = current time + squeegee-timeout
    else
        squeegee-distance = squeegee-distance +
            DistanceFunction(right-drive-speed, left-drive-speed, rate)

if(squeegee-time){
    if((squeegee-distance > safe-distance-to-squeegee) OR
       (current-time > squeegee-time))
        squeegee-safe is TRUE
    else
        squeegee-safe is FALSE
}

if(burnish-distance > safe-distance-to-burnish)
    burnish-safe is TRUE
else

```

I-2802

2804

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CONTROL

sweep, scrub, and burnish buttons polled at low level

sweep-cmd is ui-sweep-cmd
scrub-cmd is ui-scrub-cmd
burnish-cmd is ui-burnish-cmd
speed = ui-speed

Fig. 23.

25/02/28

ENABLE

Fig. 25

drive-enabled is (enabled AND (NOT(sweep-cmd XOR sweeping)) AND (NOT(scrub-cmd XOR scrubbing)))

2400

2402

DRIVE

Fig. 28

run at speed-ramp-rate times per second

```
{  
    if(right-wheel-target-speed is NOT right-wheel-current-speed)  
        right-wheel-current-speed = right-wheel-current-speed + minimum of:  
            speed-ramp-step  
            (right-wheel-target-speed - right-  
wheel-current-speed)  
    if(left-wheel-target-speed is NOT left-wheel-current-speed)  
        left-wheel-current-speed = left-wheel-current-speed + minimum of:  
            speed-ramp-step  
            (left-wheel-target-speed - left-  
wheel-current-speed)  
        right-drive-speed = right-wheel-current-speed  
        left-drive-speed = left-wheel-current-speed  
    }  
  
    if(drive-enabled AND (NOT error)){  
        if(left-handle)  
            right-wheel-target-speed = ConvertSpeedFunction(speed)  
        else  
            right-wheel-target-speed = speed-wheel-stop  
        if(right-handle)  
            left-wheel-target-speed = ConvertSpeedFunction(speed)  
        else  
            left-wheel-target-speed = speed-wheel-stop  
  
        if(right-handle OR left-handle)  
            if(NOT driving)  
                driving is TRUE  
            else  
                if(driving)  
                    driving is FALSE  
    }  
    else{  
        right-wheel-target-speed = speed-wheel-stop  
        left-wheel-target-speed = speed-wheel-stop  
        if(driving)  
            driving is FALSE  
    }  
}
```

2702

2704

2706

2708

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2714

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2718

SWEEP

Fig. 26

```

if(sweep-cmd AND (speed is NOT reverse) AND (NOT error)){ } 2502
  if(time-enabled > delay-on-sweep-start)
    if(sweeper is off)
      turn sweeper on
    if(time-enabled > delay-on-sweep-lower)
      if(sweeper is up)
        sweeper to down
      else
        if(NOT sweeping)
          sweeping is TRUE
      if(time-disabled > delay-off-sweep-raise)
        if(sweeper is down)
          raise sweeper
        if(sweeping)
          sweeping is FALSE
      if(time-disabled > delay-off-sweep-stop)
        if(sweeper is on)
          turn sweeper off
    }
  else{
    if(sweeper is down)
      sweeper to up
    if(sweeping)
      sweeping is FALSE
    if(sweeper is on)
      turn sweeper off
  }
}

```

The code is annotated with several curly braces on the right side, each pointing to a specific section of the code and labeled with a number:

- A brace spanning the first two lines of code is labeled "2502".
- A brace spanning the "if(sweeper is off)" block and the "if(sweeper is up)" block is labeled "2504".
- A brace spanning the "if(NOT sweeping)" and "sweeping is TRUE" lines is labeled "2506".
- A brace spanning the "if(sweeper is down)" and "raise sweeper" lines is labeled "2508".
- A brace spanning the "if(sweeping)" and "sweeping is FALSE" lines is labeled "(2510)".
- A brace spanning the entire "else{" block is labeled "2512".

```

if(scrub-cmd AND (speed is NOT reverse) AND (NOT error)) {
    if(time-enabled > delay-on-scrub-start) {
        if(shroud is closed)
            open shroud
        if(scrubber is off)
            turn scrubber on
        if(vacuum is off)
            turn vacuum on
        if(squeegee is up)
            lower squeegee
        if(solenoid is closed)
            open solenoid
    }
    if(time-enabled > delay-on-scrubber-lower) {
        if(pump is off)
            turn pump on
        if(scrubber is up)
            lower scrubber
        else
            if(NOT scrubbing)
                scrubbing is TRUE
    }
    if(time-disabled > delay-off-scrubber-raise) {
        if(scrubber is down)
            raise scrubber
        if(scrubbing)
            scrubbing is FALSE
        if(pump is on)
            turn pump off
    }
    if(time-disabled > delay-off-scrubber-stop) {
        if(scrubber is on)
            turn scrubber off
        if(solenoid is open)
            close solenoid
        if(squeegee-safe) {
            if(shroud is open)
                close shroud
            if(squeegee is down)
                raise squeegee
            if(vacuum is on)
                turn vacuum off
        }
    }
    else {
        if(scrubber is down)
            raise scrubber
        if(scrubbing)
            scrubbing = FALSE
        if(pump is on)
            turn pump off
        if(scrubber is on)
            turn scrubber off
        if(solenoid is open)
            close solenoid
    }
    if((speed is reverse) OR error) {
        if(shroud is open)
            close shroud
        if(squeegee is down)
            raise squeegee
        if(vacuum is on)
            turn vacuum off
    }
    else if(squeegee-safe) {
        if(shroud is open)
            close shroud
        if(squeegee is down)
            raise squeegee
        if(vacuum is on)
            turn vacuum off
    }
}

```

2604

Fig. 27

2605

2608

2610

2612

2614

2616

2618

Fig. 30

BURNISH

```

} }

if(burnish-cmd AND (speed is NOT reverse) AND (NOT error)){
    if(time-enabled > delay-on-burnisher-start){
        if(burnisher off)
            turn burnisher on
        if(burnish-safe AND driving){
            if(burnisher NOT down)
                burnisher to down
            else
                if(NOT burnishing)
                    burnishing is TRUE
        }
        else
            if(burnisher NOT at middle)
                burnisher to middle
    }
    if((time-disabled > delay-off-burnish-stop) OR (NOT driving)){
        if(burnisher is down)
            burnisher to middle
        if(burnishing)
            burnishing is FALSE
        if(burnisher is on)
            turn burnisher off
    }
    if(time-disabled > delay-off-burnish-raise)
        if(burnisher NOT up)
            burnisher to up
    }
    else{
        if(burnisher is down)
            burnisher to up
        if(burnishing)
            burnishing is FALSE
        if(burnisher is on)
            turn burnisher off
    }
}

```

] 2902

{ 2904

{ 2906

] 2908

] 2910

] 2912

] 2914